



UNITED STATES PATENT AND TRADEMARK OFFICE

cm
UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/597,218 | 06/20/2000 | Kimio Yamakawa | TSL1549 | 5276 |

137 7590 12/05/2002

DOW CORNING CORPORATION CO1232
2200 W. SALZBURG ROAD
P.O. BOX 994
MIDLAND, MI 48686-0994

EXAMINER

GRAYBILL, DAVID E

ART UNIT

PAPER NUMBER

2827

DATE MAILED: 12/05/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/597,218

Applicant(s)

YAMAKAWA ET AL.

Examiner

David E Graybill

Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 November 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

Art Unit: 2827

In the previous Office action mailed 7-24-2, claims 3, 12, 14, 15 and 17 were inadvertently not examined on their merits. Therefore, the finality of the Office action mailed 7-24-2 is herein withdrawn, and claims 3, 12, 14, 15 and 17 are more properly examined on their merits.

The disclosure is objected to because in the specification, at page 4, line 20 to page 5, line 1, silicon carbide and carbon are incorrectly listed as examples of inorganic materials.

In the rejections infra, reference labels are generally recited only for the first recitation of identical claim language.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary.

Art Unit: 2827

Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-4, 5, 7, 8, 10, 11, 13, 14, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakayoshi (JP7292343), or in the alternative, over the combination of Nakayoshi (JP7292343) and Sierawski (5882467).

In the JPO and Derwent English abstracts, the Japanese Patent Office translation sections [0020] and [0021], and the figures, Nakayoshi teaches the following:

1. An adhesive composition for bonding a semiconductor chip to an attachment member for the chip comprising a curable polymer composition comprising from 1000 to 1,000,000 weight-ppm spherical filler having an average particle size of from 10 to 100 μm and a major axis-to-minor axis ratio of from 1 to 1.5.
2. The adhesive composition of 1, where the spherical filler has a particle size distribution with a standard deviation that does not exceed 10% ["3.0 micrometers or less"] of the average particle size of the filler.

Art Unit: 2827

4. The adhesive composition of 1, where the spherical filler is an inorganic spherical filler.
5. The adhesive composition of 1, where the curable polymer composition is a curable silicone composition.
7. The adhesive composition of 1, where the spherical filler has a major axis-to-minor axis ratio of from 1.0 to 1.1.
8. The adhesive composition of 1, where the curable polymer composition is an addition reaction-curable silicone composition.
10. A semiconductor device comprising a semiconductor chip bonded to an attachment member for the chip by an adhesive composition comprising a curable polymer composition comprising from 1000 to 1,000,000 weight-ppm spherical filler having an average particle size of from 10 to 100 um and a major axis-to-minor axis ratio of from 1 to 1.5.
11. The semiconductor device according to 10, where the spherical filler has a particle size distribution with a standard deviation that does not exceed 10% of the average particle size of the filler.
13. The semiconductor device according to 10, where the spherical filler is an inorganic spherical filler.
14. The semiconductor device according to 10, where the curable polymer composition is a curable silicone composition.

16. The semiconductor device according to 10, where the spherical filler has a major axis-to-minor axis ratio of from 1.0 to 1.1.

17. The semiconductor device of 10, where the curable polymer composition is an addition reaction-curable silicone composition.

However, Nakayoshi does not appear to explicitly teach the polymer composition comprising from 1 to 900 weight-ppm spherical filler or the following:

3. The adhesive composition of 1, where the curable polymer composition comprises from 1 weight-ppm to 700 weight-ppm spherical filler.

12. The semiconductor device according to 10, where the curable polymer composition comprises from 1 weight-ppm to 700 weight-ppm spherical filler.

Nonetheless, Nakayoshi teaches that in a process of manufacturing the claimed adhesive, filler weight-ppm is a result-effective variable. Moreover, it would have been an obvious matter of design choice bounded by well known manufacturing constraints and ascertainable by routine experimentation and optimization to choose the particular claimed filler weight-ppm limitations because applicant has not disclosed that the limitations are for a particular unobvious

Art Unit: 2827

purpose, produce an unexpected result, or are otherwise critical, and it appears prima facie that the process would possess utility using another weight-ppm. Indeed, it has been held that optimization of range limitations are prima facie obvious absent a disclosure that the limitations are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical. See MPEP 2144.05(II): "Generally, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. '[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.'" In re Aller, 220 F.2d 454, 105 USPQ 233, 235 (CCPA 1955). See also In re Hoeschele, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969), Merck & Co. Inc. v. Biocraft Laboratories Inc., 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989), and In re Kulling, 897 F.2d 1147, 14 USPQ2d 1056 (Fed. Cir. 1990). As set forth in MPEP 2144.05(III), "Applicant can rebut a prima facie case of obviousness based on overlapping ranges by showing the criticality of the claimed range. 'The law is replete with cases in which the difference between the claimed invention and the prior art is some range or other

Art Unit: 2827

variable within the claims. . . . In such a situation, the applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range.' In re Woodruff, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). See MPEP § 716.02 - § 716.02(g) for a discussion of criticality and unexpected results."

Because applicant cites Nakayoshi in the original disclosure, it appears that applicant considers the claims unpatentable over Nakayoshi alone. Therefore, in the alternative, the claims are further rejected under 35 U.S.C. 103(a) as obvious over the combination of Nakayoshi and Sierawski.

Specifically, Nakayoshi does not appear to explicitly teach the polymer composition comprising from 1 to 900 weight-ppm spherical filler or the following:

3. The adhesive composition of 1, where the curable polymer composition comprises from 1 weight-ppm to 700 weight-ppm spherical filler.

12. The semiconductor device according to 10, where the curable polymer composition comprises from 1 weight-ppm to 700 weight-ppm spherical filler.

Art Unit: 2827

Nonetheless, at column 10, lines 34-43, Sierawski teaches an adhesive polymer composition comprising from 1 to 700 weight-ppm spherical filler ["less than about 20 weight percent"]. Moreover, it would have been obvious to combine the product of Sierawski with the product of Nakayoshi because it would provide a filler.

Claims 6, 9 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Nakayoshi (JP7292343) and Sierawski (5882467).

The combination of Nakayoshi and Sierawski is applied as it was applied to claims 1 and 10 supra.

Further, Nakayoshi does not appear to explicitly teach the following:

6. The adhesive composition of 1, where the curable polymer composition is a curable epoxy resin composition.

9. The adhesive composition of 1 further comprising a thixotropic agent where the thixotropic agent has a specific surface area of 50 to 500 m²/g.

15. The semiconductor device according to 10, where the curable polymer composition is a curable epoxy resin composition.

Nevertheless, the quality of being a thixotropic agent is an inherent property of the composition of the applied prior art.

In addition, at column 3, line 24 to column 4, line 32, and column 8, lines 52-67, Sierawski teaches where a curable polymer composition is a curable epoxy resin composition comprising a filler that has a specific surface area of 50 to 500 m²/g ["at least 50 square meters per gram"].

Furthermore, it would have been obvious to combine the product of Sierawski with the product of Nakayoshi because it would provide a polymer composition and a filler.

Applicant's arguments in the appeal brief filed 11-19-2 have been fully considered, and are addressed in the rejection supra and are further addressed infra.

Applicant argues that the rejection of the claims over Nakayoshi is improper because, allegedly, Nakayoshi teaches away from the instant claimed invention. This argument is respectfully traversed because disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments. In re Susi, 169 USPQ 423 (CCPA 1971). "A known or obvious composition [such as the instant claimed adhesive composition] does not become patentable simply because it has been described as somewhat inferior to some other product for the same use." In re Gurley, 31 USPQ2d 1130, 1132 (Fed. Cir. 1994). A reference may be relied upon for all that it would have reasonably suggested to one having

Art Unit: 2827

ordinary skill the art, including nonpreferred embodiments.

Merck & Co. v. Biocraft Laboratories, 874 F.2d 804, 10 USPQ2d

1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989). Even a

teaching away from a claimed invention does not render the

invention patentable. See Celeritas Technologies Ltd. v.

Rockwell International Corp., 150 F.3d 1354, 1361, 47 USPQ2d

1516, 1522-23 (Fed. Cir. 1998), where the court held that the

prior art anticipated the claims even though it taught away from

the claimed invention. "The fact that a modem with a single

carrier data signal is shown to be less than optimal does not

vitiate the fact that it is disclosed." To further clarify, a

prior art opinion that a claimed invention is not preferred for

a particular limited purpose, does not preclude utility of the

invention for that or another purpose, or even preferability of

the invention for another purpose.

Also, applicant cites particular portions of the disclosure

to support the contention that the instant claimed invention

provides unexpected results over Nakayoshi. This contention is

respectfully deemed to be unpersuasive because applicant has not

established that the cited results are unexpected and unobvious

and of both statistical and practical significance. To further

clarify, it is respectfully submitted that unexpected results

must be established by factual evidence, and not by mere

argument. See, for example, *In re De Blauwe*, 736 F.2d 699, 222 USPQ 191, 196 (Fed. Cir. 1984). To this end, the arguments of counsel cannot take the place of evidence in the record. *In re Schulze*, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965). Instead, the evidence relied on should establish "that the differences in results are in fact unexpected and unobvious and of both statistical and practical significance." *Ex parte Gelles*, 22 USPQ2d 1318, 1319 (Bd. Pat. App. & Inter. 1992). See also, *Ex parte C*, 27 USPQ2d 1492 (Bd. Pat. App. & Inter. 1992); *In re Nolan*, 553 F.2d 1261, 193 USPQ 641, 645 (CCPA 1977); and *In re Eli Lilly*, 902 F.2d 943, 14 USPQ2d 1741 (Fed. Cir. 1990).

Applicant also traverses the statement of motivation, "it would have been obvious to combine the product of Sierawski with the product of Nakayoshi because it would provide a filler," because, applicant proffers, "the mere fact that the prior art may be modified as suggested by the Examiner does not make the modification obvious unless the prior art suggests the desirability of the modification." This traversal is respectfully traversed because it is well established that the selection of an art recognized element based on its suitability for its intended use supports a prima facie obviousness determination. See MPEP 2144.07, in particular, *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297

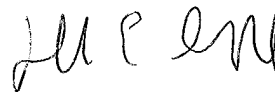
Art Unit: 2827

(1945); and In re Leshin, 227 F.2d 197, 125 USPQ 416 (CCPA 1960) (selection of a known plastic to make a container of a type made of plastics prior to the invention was held to be obvious); Ryco, Inc. v. Ag-Bag Corp., 857 F.2d 1418, 8 USPQ2d 1323 (Fed. Cir. 1988) (Claimed agricultural bagging machine, which differed from a prior art machine only in that the brake means were hydraulically operated rather than mechanically operated, was held to be obvious over the prior art machine in view of references which disclosed hydraulic brakes for performing the same function, albeit in a different environment). Therefore, to paraphrase In re Leshin supra, selection of the spherical filler of Sierawski to make an adhesive polymer composition of a type made of spherical filler as taught by Nakayoshi would have been obvious.

Any telephone inquiry of a general nature or relating to the status (MPEP 203.08) of this application or proceeding should be directed to Group 2800 Customer Service whose telephone number is 703-306-3329.

Any telephone inquiry concerning this communication or earlier communications from the examiner should be directed to David E. Graybill at (703) 308-2947. Regular office hours: Monday through Friday, 8:30 a.m. to 6:00 p.m.

The fax phone number for group 2800 is 703/308-7722.



David E. Graybill
Primary Examiner

Application/Control Number: 09/597,218

Page 13

Art Unit: 2827

Art Unit 2827

D.G.

3-Dec-02